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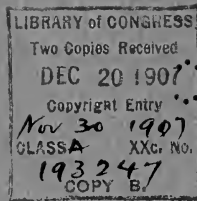
# HOW TO SHOOT

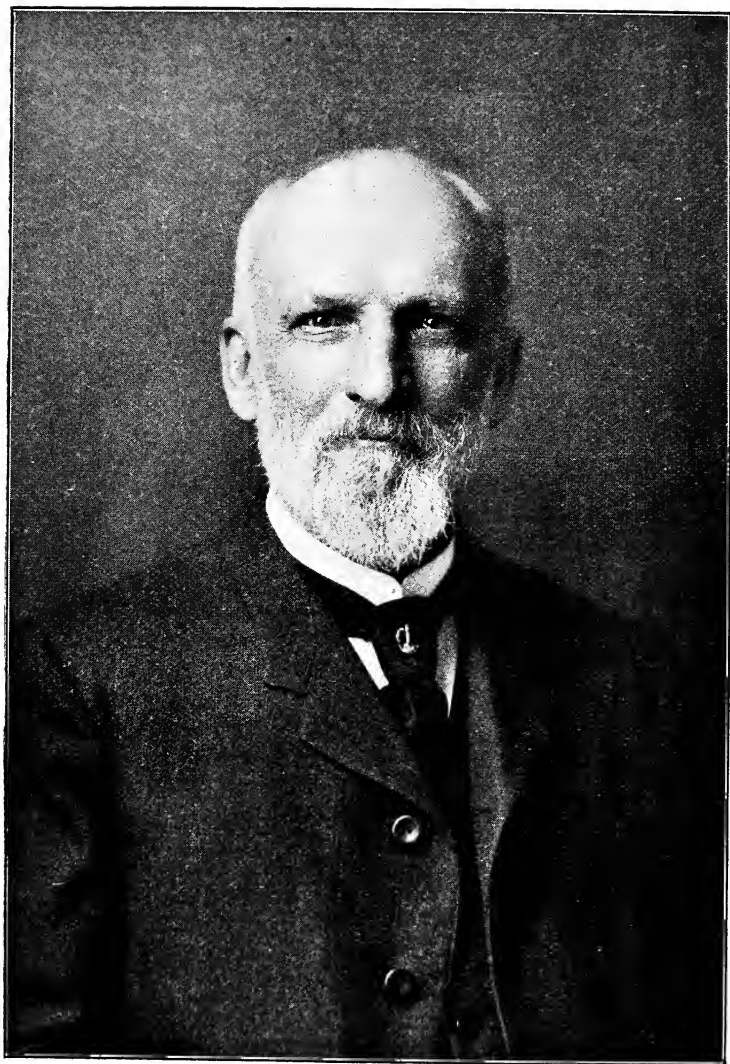
BY

GENERAL GEORGE W. WINGATE

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*Geo. W. Wingate*

*Nov. 7. 1907.*

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# How to Shoot.

ADDRESS BY

GENERAL GEORGE W. WINGATE,

President of the PUBLIC SCHOOLS ATHLETIC LEAGUE

TO

HIGH SCHOOL BOYS OF NEW YORK CITY.

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O be able to shoot accurately with a rifle is not only interesting to anyone who learns to do it, but is important to the community as adding an important factor to our resources for national defense. It is not the policy of the United States to maintain a large standing army in time of peace; it always has, and always must look for protection to sudden levies of volunteers. When they are called for, no difficulty is experienced in getting all the men that may be desired, and, if we have a proper system, not much trouble in uniforming and equipping them. They can be taught a certain amount of military drill in a comparatively short period, and if they know how to shoot, they then become quite an efficient force. But as Napoleon once said, "Shooting is everything and the rest is nothing." This may be a little exaggerated, but, in the main, it is true, and without the knowledge of how to use a rifle accurately, and until they are taught to do it (which takes a good deal of time) an army of volunteers is but little better than a mob. It can no more withstand the attack of a trained force of disciplined veteran soldiers than an ordinary class in a high school, without athletic training, could keep back the rush of a crack college football team.

If, therefore, the thousands of young men like yourselves who are growing into manhood, can be taught while in our schools to become good shots, they would be able in case of war, to do as the Boers did in South Africa—to withstand a large force of disciplined soldiers.

The difference between the success attained by the Boers in repelling the attacks of the British regular troops at odds of ten to one, and the failure of the Russians to hold their field fortifications against an equal force of Japanese, demonstrates most forcibly the difference between the efficiency of an undisciplined military force that can shoot and that of a disciplined one that cannot.

It is for these reasons that President Roosevelt has in his recent letter, publicly commended the attempts which the Public Schools Athletic League are making to teach you and our other high school boys how to shoot with a military rifle.

I have been somewhat puzzled in accepting the invitation to address you on the subject of rifle shooting, to decide upon what is best to say. The book which I wrote on that subject a number of years ago contains several hundred

pages, and it is not easy to condense within the limits to which I must confine myself to anything more than the general principles which are applicable to the use of the rifle. These principles, however, are all that you need at the present time, and probably are all which you will be likely to remember so as to keep them in mind; and it is necessary that you should have considerable practical experience to be able to apply some of them.

The gun with which you are to do your shooting, which is the rifle with which the army and the National Guard are equipped, is usually known as the "Krag." The army has adopted an improved model of this rifle, which is known as the "New Springfield." This is somewhat shorter, a little lighter, and is somewhat more powerful. It will be a long time before it will be issued to the National Guard.

For this reason, all that I say to you is to be considered as being only applicable to the "Krag."

## Rules for Handling the Rifle

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The first thing you must bear in mind in undertaking to do anything with a rifle, shot-gun or pistol, is never, under any circumstances, to allow its muzzle to be pointed at yourself or at anyone else, whether it is loaded or unloaded. It is an old maxim that, "It is the empty gun that kills." One never can tell when he takes up a gun whether it is loaded or not. It may be that you laid it down five minutes before, and knew that it was empty. But some one may have taken it up and put a cartridge in it. Consequently, whenever you are carrying a gun you should always open the breech-block and see that the chamber is empty.

Whenever you are shooting and have occasion to leave the firing point, you should always remove the cartridge from your rifle. You should always do the same whenever you get into a wagon or into a boat. In pigeon shooting clubs they fine a man heavily if he turns to leave the firing point without opening his gun, even though he may have just discharged both barrels. In walking always keep the muzzle of your gun pointed away from your companions.

You must always remember that, notwithstanding the fact that firearms now all have safety catches and various devices, which apparently render it impossible for them to go off accidentally, yet every once in a while these do not work. Anyone who has had long experience in shooting under various conditions can recount to you many instances where he has seen guns discharged without any apparent reason. If in the hands of a careful man, who does not allow the muzzle to be pointed at anybody, nothing happens in such an event, but in the hands of one who is not careful, accidents are far too common.

This is a matter of so much importance that it may be well to give you a few personal experiences.

Once during the Civil War there was a circle of men, of whom I was one, sitting in a tent, there being an opening of about a yard in diameter between their feet. An officer handed me a Colt's revolver, and asked my opinion of it. It was one of the old muzzle loading kind. I asked him "if it was loaded," and he said "no." I half cocked it, ran the cylinder around and saw that the nipples were

black, from which I assumed that he was correct in stating it was not loaded. I balanced it in my hand as a man does in testing a pistol, and aimed it at a blue bottle fly, which was in the centre of the open space, pulled the trigger and—killed the fly stone dead. It seems that somebody else had loaded the pistol, and that the owner had carried it in his belt, not knowing it to be loaded, until the caps had become so corroded that they had become the color of the nipples.

Another time I was shooting at Creedmoor with the American Rifle Team of which I was then captain, and had laid my gun, which was a Remington, across a camp chair with the muzzle directed at the target. When my turn came to fire, I got up, put a cartridge in the barrel, closed the breech-block—as I had done a thousand times before—and the gun went off, nearly dislocating my thumb, but doing no harm, as the muzzle was pointed to the front. Why it went off I never knew.

On another occasion I was sitting on a stump in the Adirondacks with a Ballard rifle between my knees, which was on half-cock, and was supposed in that condition to be perfectly safe. A friend took it up, and in a joke pointed it in the direction of a man who was walking away. It went off in his hands, the bullet going right over the man's head, but, fortunately, did not hit him. My friend who did it, was so overcome that he turned green, and had to sit down on the stump of a tree, saying as he did so, "That is a lesson for me to never point a gun at anybody again."

I hope that each of you will always keep this lesson in mind.

Anyone who points a gun or pistol at another, whether empty or not, in earnest or in sport, should have his weapon taken from him, and be pounded over the head with the butt by the man at whom it has been pointed.

The above injunctions apply with peculiar force to pistols. The barrel of a pistol is so short that the least movement of it makes a tremendous angle so that it will point at a person who is far to one side. The thumb is also very liable to slip off from the hammer in uncocking it. I myself have had the hammer of a revolver slip so as to discharge it on several occasions, once in my bedroom, and yet I considered myself careful.

## The Rifle

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In order to be a rifleman, a knowledge of certain simple elementary principles is essential. These I will state briefly.

The first guns that were made were an iron cylinder, smooth on the inside and used round bullets. As it is almost impossible to make the inside of such a cylinder accurate, and still more difficult to cast a bullet perfectly round, when fired out of a smooth barrel such a bullet deviates toward its heaviest side, and its course is consequently very inaccurate. The range of such a bullet is not over one hundred yards, and it could not be depended upon to hit a mark the size of a man at that distance. About one hundred and fifty years ago it was discovered that if the inside of a barrel of a gun was cut with spiral grooves, so that a bullet

passing through the barrel would be made to revolve on its centre, it would go straight forward in the same way that a rapidly revolving top stands upon its point. These grooves make what is termed a "rifle." Other guns are called "smooth bores."

The first settlers in this country being constantly in conflict with Indians and with the beasts of the forest, found the rifle to be so superior to the old smooth bore that its use among them became universal. The armies of the world, however, with that conservatism which is characteristic of them, were very slow to change. Thus, although rifles were used to a very great extent in the Revolutionary War, our army, with the exception of a few bodies of riflemen, used the old-fashioned smooth bore as late as the Mexican War in 1848.

The old army musket carried a very large bullet, and was loaded with a round ball and three buckshot. Up to about sixty yards it was very deadly, but beyond that was ineffective. It is related that a British general offered to bet one hundred pounds that he would stand at a distance of one hundred yards and allow a man to fire at him with a British rifle of this kind (which was then known as "Brown Bess"), provided the man took careful aim at him every time.

It seems very singular that this condition of affairs was allowed to exist, when we recall the tremendously effective work that Jackson's riflemen did in the Battle of New Orleans. Nevertheless, it did for many years.

About the middle of the last century, a Frenchman named Minie discovered that by using in a rifle a pointed bullet, the resistance of the atmosphere was so much decreased that the range of the projectile was increased tenfold. His idea was adopted by the French army, and its use soon became universal. The army people rapidly adopted it, not so much because of its increased accuracy, but because the increase of range placed the troops who did not have it at an enormous disadvantage.

Until the close of our Civil War military rifles were all muzzle loaders. The charge of powder was contained in a cylinder made of brown paper, at the front end of which the bullet was inserted. The soldier tore off the other end of the cartridge with his teeth, poured the powder into the barrel of his gun, put the bullet on top of it, rammed it down, put a percussion cap on the nipple and fired it. Not only were these paper cartridges apt to get wet (in which case they were useless), but in rapid firing the barrel became dirty, so that it was almost impossible to ram the bullets down. It was a common thing after a battle to pick up rifles which had five or six loads in them, their owners in their excitement not having observed that the first charge had failed to explode, and put charge after charge on top of it.

I was once in a regiment which had been lying out in the rain for several days, and which was finally formed into line by the colonel, and ordered to fire a volley for the purpose of emptying the guns. Out of 750 rifles I doubt if there were 25 that went off the first time, on account of the charges having become wet. This has been cured by the introduction of the breech-loader, which permits of an exact charge and keeps the powder dry. It also enables a man to look through his gun barrel and see that it is clean. It also immensely increases the rapidity of fire.

It seems singular that during the Civil War, when all hunters were using breech-loading rifles, that they were so slow in introducing them in the army. The



Ordnance Department, however, were apparently afraid that their introduction would use up more ammunition than they were able to supply, and had a large number of mare's nests of a similar description, which prevented them from introducing the breech-loader to any considerable extent. Some of the cavalry were given them, and a few regiments of infantry towards the last. But although it was demonstrated that the efficiency of these organizations was more than trebled by having the breech-loader, no general change was attempted, until after the close of the Civil War.

The "calibre" of a rifle means the diameter of the bullet, and this is spoken of in decimals; that is to say, .50 means one-half of an inch in diameter, and .33 one-third of an inch. The first military rifles carried very large bullets, some being .60 and even .75. At short ranges these made a terrible wound but their flight was extremely short. To obtain a longer range, the tendency has been to reduce the diameter of the bullet, and to lengthen it. Thus, the army rifle of .50 calibre used in the Civil War, and which after the war was converted into a breech-loader, was reduced to .45 and now is .30. The bullet, consequently, is about the size of a small lead pencil, and is nearly an inch and a half long.

Its small diameter and great weight (caused by its length) gives our present Krag a range of 4000 yards. It takes the bullet 34.6 seconds to pass this distance (nearly two and a half miles) and requires the rifle to be raised to an angle of 44 degrees. The projectile has a steel jacket (which ensures its taking the grooves of the barrel) and this will penetrate 45 inches of wood at a distance of 53 feet, and 11½ inches at 1000 yards. It is, however, much more humane than the old bullets, inasmuch as the wound makes a small clean aperture which soon heals, the bullet not carrying into the wound any dirt or particles of clothing, as was the case with the big bullet.

## Sights

The shooting of a rifle is controlled by a front and a rear sight. The front sight is almost universally a fixed one. The rear sight is arranged with a slide which moves up and down, and most of them have a wind gauge, which is an arrangement by which the sight can be moved to the right or left. The front sight is usually in the shape of a wedge placed upon a small block, which is mortised into the front end of the rifle barrel. The slide of the rear sight is a cross-bar, in the centre, on the top of which is a cut usually in the shape of a "V." In the Krag, which is the rifle you have, there is a peep-hole underneath this notch.

In aiming, the barrel of a rifle is held in such a way that the point of the wedge in the fore sight is seen in the opening of the "V," or through the peep sight, and is then placed upon the point which it is desired to hit. This ensures that the rifle barrel is pointed at the object on which the wedge of the foresight is aligned.

If it is desired to shoot above the object, the slide of the rear sight is raised (the effect of which is to raise the muzzle). If to shoot below it, it is lowered, or aim is taken underneath it. If it is desired to shoot to the right, the wind gauge is moved to the right, and if to the left it is moved in that direction.

In doing this, however, it is necessary to keep in mind certain simple principles which control the flight of a bullet. As soon as a bullet leaves the muzzle of a rifle, the action of gravity causes it to begin to drop. It falls sixteen feet in the first second of its flight, and forty-eight feet in the second, making a total of sixty-eight feet in two seconds and its speed increases about 30 feet each additional second, the rate of fall being in these proportions for each fraction of a second. This fall takes place exactly the same whether the bullet is going forward or standing still.

In other words, if the barrel of a rifle should be held perfectly horizontal, and a bullet should be tied by a string at the muzzle, so that the string will be cut by a bullet firing out of the barrel, the two balls will strike the ground at exactly the same time, the only difference being that the one which is fired out of the barrel before it reaches the ground will go a certain distance in the direction in which the barrel is pointed, depending on its velocity. Assuming, therefore, that if the gun barrel is held horizontally four feet from the ground, and that a bullet fired from it is going at the rate of 1800 feet a second, it will strike the ground at a distance of 450 feet.

In order to enable a bullet to go farther than this distance, it is necessary to raise the muzzle so that the bullet will describe an arc like water out of a hose pipe. In other words, just as one of you when throwing a base-ball at a long distance, throws it high in a curve, to have a rifle carry a long distance, it is necessary to raise the muzzle so that the bullet will make a corresponding curve. This raising of the muzzle is accomplished by raising the rear sight, and is called the "elevation."

Thus, assuming that the distance between the sights of the rifle is three feet, if the rear sight is raised one inch, and aim is taken, so that the front and rear sights are in the same line, the muzzle would thereby be raised one inch. Consequently, the bullet would be raised one inch to every three feet of its flight, which at the rate of thirty yards would raise it thirty inches.

The time of flight for the bullet from the Krag is as follows:

100 yards,	. . .	.159 seconds
200 "	. . .	.337 "
300 "	. . .	.537 "
1000 "	. . .	2.587 "

The bullet takes 34.6 seconds to pass over its extreme range of 4000 yards, from which you can estimate the tremendous curve it has to make in its flight, the angle being 44 degrees.

Almost all rifles are made with their rear sights slightly raised, so as to have them shoot true at a certain specified distance, which is called "Point Blank." On ordinary rifles this is about sixty yards. In the army military rifles this with the open sight is fixed for three hundred yards. This makes it necessary in shooting at shorter distances, to aim with that sight under the object which is desired to be hit. The official figures state that in shooting at 300 yards, the trajectory, or line of flight of bullet at one hundred yards is nearly a foot above the line of sight, and 3.16 feet above at 200.

In addition to the question of distances as affecting the matter of the elevation, which is required to be given a rifle to make its bullet carry to the desired

point, the flight of the bullet is affected by the atmosphere, and particularly by the wind. A head wind retards a bullet; a rear wind makes it go faster. It is, therefore, in the first case necessary to raise the elevation of the rear sight, and in the latter to reduce it. A side wind blows the bullet out of its course. This is particularly the case with the small calibre bullets now in use. With them a side wind of twelve miles an hour will make a deviation at five hundred yards of over four feet.

This can be allowed for upon our military rifles by moving the rear sight sideways in the direction of the wind, and such rear sight is marked with a scale for that purpose. That is to say, if the velocity of the wind is high, the sight wind gauge is moved to that side which turns the barrel in that direction, each point on the scale of the wind gauge making a deviation of 6 inches on the target at 100 yards, the deviation or angular value increasing with the increase of range, so that at 1000 yards range, a movement of 1 point on the rear sight wind-gauge would cause a deviation of the bullet of 5 feet on the target.

The "drift" of a rifle is a thing which must also be considered. This means the tendency of the bullet when it comes out of the barrel to diverge or "drift" in the direction in which it is revolving, a bullet coming out of a barrel which has a right-handed twist, going to the right; and one with a left-handed twist going to the left. This, however, is affected a great deal by the way in which the rifle is stocked, so that each gun has a rule to itself in this respect. Thus, in the Krag, the drift is first to the left. This continues up to a distance of 1100 yards, and then the bullet begins to curve to the right. Thus, it is  $2\frac{1}{2}$  inches at 100 yards, 8 inches at 500 and  $\frac{3}{4}$  at 1000. However, this element of drift is automatically compensated for in the rear sight of our present military arms, and requires no attention on the part of the shooter.

There are many fine points connected with shooting in the field to which it is not necessary for me at the present time to refer. In fact, they can only be learned by actual practice in the open air. I may say, however, that at the longer ranges the correct estimation of distance is extremely important. In our present military rifle the velocity of the bullet is so great, and consequently the trajectory is so flat, that if a standing man is anywhere between the gun and a distance of 400 yards, and aim is taken at his head, he will be hit somewhere; but as the distance and the time of the flight of the bullet increases, the latter drops so rapidly, that the bullet describes such a curve that the space within which a man could be hit, or "dangerous distance" decreases very rapidly. So that in firing at a distance of a thousand yards, if a mistake of 37 feet is made in estimating the distance, a standing man fired at would be missed. In other words, if the distance estimated was 18 feet too little, a bullet would strike at his feet. If it was 19 feet too much, the bullet would go over his head.

To learn, however, to guess distance correctly requires a great deal of practice in the field; and, therefore, it is not worth your while giving any consideration to the subject. So also the effect of front winds, side winds and diagonal winds, can only be learned by experience. The result of the varying condition of the atmosphere upon shooting is another matter that you will have to bear in mind when you come to shoot in a rifle range. I will simply say upon this point, that the idea that damp air is heavy, is a mistake. It is really lighter than dry air. There is, therefore, less resistance in the atmosphere when it is damp, than when it is hot and dry, and in the latter case there is always an increase in the

friction of the rifle. It is, therefore, necessary to use a higher elevation on a hot dry day than on a damp cool one. The sunlight also makes quite a difference, when you are shooting with open sights, but not much when you are using the peep. When a target is bright, you shoot high with open sights. When it is obscure, you shoot low. The aim should consequently be lowered slightly in the former case and elevated in the latter.

The temperature must also be considered as a factor. In shooting at a thousand yards a difference of ten degrees would make a difference of two feet in the elevation on the target.

When a rifle becomes heated the barrel expands. Therefore, after the first two shots, the bullet will drop, making it necessary to slightly increase the elevation. This is particularly noticeable in cold weather.

## Aiming

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When I first became interested in rifle shooting, it was considered in this country that the only way in which a man could learn to shoot a rifle was to take aim and shoot at a mark, and to do this unaided. If he hit the mark, it was good, and if he did not hit it, it was a dispensation of Providence, which nobody could remove except the man himself by constant practice. This theory has been entirely done away with, and it is now recognized that a man can be taught to shoot just as he can be taught to write. *There have been many inventions designed to accomplish this object. I myself invented one a number of years ago of which I was very proud. But the SUB-TARGET RIFLE MACHINE, with which your school has been furnished, is considered by all familiar with the matter, to be far in advance of anything of the kind which has ever been devised, and will enable you to get that practice by which alone accurate shooting can be acquired.*

**The foundation of all rifle shooting rests upon the proposition that a man who is able to align the sight of his rifle accurately upon the object which he desires to hit, and can pull its trigger without causing this alignment to deviate from the mark, would hit that mark if he had a cartridge in his gun.** This can only be acquired by steady, systematic practice, and can be learned as well, and many times better, by aiming and pulling the trigger of an empty gun than that of one which is loaded. When this art has once been acquired, the shooting of a cartridge at a mark, which involves the other matters which I have alluded to, can be learned without any substantial difficulty.

In target practice the target is spoken of by numbers as if it were the face of a watch, twelve o'clock being the top; six o'clock the bottom; three o'clock the right-hand side, and nine o'clock the left. Thus, when a rifleman speaks of getting a shot in the bull's-eye at three o'clock, he means that he hit it in the

right-hand upper side or edge. The aim should never be taken directly at the bull's-eye on the target. If this is done, the point of the front sight is merged in the black of the bull's-eye, and you are not sure of the exact point at which you are aiming. The aim should, therefore, be taken so that the point of the sight just touches the lower edge of the bull's-eye. Most people aim a little to the left of its centre, as most men shoot to the right, and there is a tendency of an ordinary man to pull the gun slightly in that direction. In other words, they aim at what would be seven o'clock on a watch.

As the Krag rifle has a drift to the left, it is better in using it to aim directly under the bull's-eye.

The Army Regulations caution a soldier that while raising the line of sight to the mark, he must fix his eye on the mark and not on the front sight. The front sight will always be plainly seen though the eye is not directed specially upon it. This is particularly the case in the longer ranges, where the focus of the eye must be quite different to define the target from what is required for the sights. If the eye is focused on the front sight, the target at long distance will be obscured, whereas, if the eye is focused for the actual distance, the sight is readily seen without changing the focus of the eye.

People with near sight who have to use glasses to define the sights of the rifle, find this difficulty removed when they are aiming through the notch, as the effect of it is to render the rays of light parallel.

In aiming, the left eye should be closed, and sight taken with the right eye. Some shoot with both eyes open, but they are few, and those that do only use the right eye in aiming.

The gun should be brought below the target and raised with a slight, steady motion until the sights are seen in the right place. The instant this is done, the gun should be stopped without jerk, and the trigger pulled by a gradual contraction of the hand, the piece being held firmly against the shoulder with the other fingers, care being taken to "squeeze" the trigger, and, under no circumstances, to jerk it.

**This steady pull-off is the thing upon which all accurate shooting depends.** Unless it can be acquired, it is impossible to shoot accurately. It can readily become habitual by steady practice in aiming and pulling the trigger, and when you have once acquired it you have become a steady shot.

When you are raising your gun to aim you must draw a moderately long breath. Then hold the breath and slowly raise the rifle with the left hand, being careful not to incline the sights to either side.

The contraction of the trigger finger should be steadily increased while the aim is being perfected, so that when the aim has become exact, the additional pressure required can be given almost instantly without causing any deflection of the rifle. The aim should be continued for a moment after the discharge, and careful attention paid to the position of the sights at the moment when the trigger was pulled.

The inclining of the sights to one side or another, which is called "canting the rifle," is a thing which must be carefully avoided. The effect of it is not only

to make the rifle shoot to the side to which the sights are "canted," but to reduce the elevation. In other words, to shoot low. This is particularly the case where the sight is elevated to shoot at a long distance.

For example if you assume that the sight is three inches high, and the gun should be "canted" so that the top of the sight was three inches to the right, you would not only shoot as much to the right as you would if you moved your wind gauge three inches, but you would lose an inch and a quarter in elevation.

If instead of squeezing the trigger, it is pulled with a jerk, as the untrained man is very apt to pull it, the muzzle of the rifle will probably be deflected to the right, and frequently downward.

If in firing you keep your eye upon the target, you will be able to see just what the position of the sights was when the trigger was pulled, and will, therefore, be able to "call your shot." In other words, you will know just where the shot would go on the target, unless, of course, it was deflected by some movements in the atmosphere, and will also know if you have "flinched" or "pulled off." This is a habit which should be carefully cultivated, and the instructor should always require each man to "call his shot" after he has fired. In other words, to show where he thinks the shot would have gone as a bullet, or three o'clock center, etc. With practice a steady shot can "call his shot" with great accuracy.

Great care must be exercised not to flinch when you pull the trigger. This is fatal to all shooting. With the Sub-Target Gun, where there is no flash or recoil, you will soon acquire the habit of pulling the trigger steadily and of not flinching.

Having acquired this habit, when you come to use a cartridge, you will find practically no trouble in shooting with it.

This "flinching" is frequently caused in beginners by their bending the head forward, so that when the gun is fired the recoil throws their hand against their nose at the moment of discharge. Often they do not notice this, but, nevertheless, the apprehension may cause them to move the head or body when they pulled the trigger.

As you are practicing with a gun which has no recoil, it is important that you should watch your position carefully, so that you will not be disconcerted by its "kicking" when you undertake to shoot in the field; although your experience at our annual field days at Creedmoor has shown that careful training on the rifle machine has eliminated to a large degree what we call "gun-shyness."

## Firing Positions

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The positions to be taken in shooting are,

1. Standing or "off-hand;"
2. Kneeling or sitting;
3. Lying, which means either prone; i. e., with the face to the target; or the back position, i. e., lying on the back, which latter, however is not now permissible in military shooting.

# Firing Standing

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In firing standing the first point to be considered is to secure a firm position in which you will be perfectly steady, even when the wind is blowing, and which will enable you to have such command of your rifle, that you can not only shoot it quickly, but be able to work the magazine, as you will be required to do in rapid firing.

The left shoulder should be brought toward the target, and the feet placed about eighteen inches apart—depending on the size of the man—toes pointing to the right and a little inward, and a pressure of the legs and feet exerted, so as to hold yourself firmly on the ground and to resist any side pressure which may be caused from the wind (which pressure at times is quite considerable). As your practice will be indoors, you must be careful to acquire this position, to ensure that you will not acquire a position unsuited to out of door shooting.

The body should be held erect from the hips, and the whole position should be as free and unconstrained as possible.

There are a number of different ways of holding the rifle, and, in fact, men of different builds are obliged to hold it in somewhat different ways. Many very good shots rest the left elbow against the side, and support the gun on the fingers of the left hand placed near the trigger guard. This is done particularly by the Schuetzenfest people. If there is no wind, this is a very steady position. I do not consider, however, that it is a practical one for the use of a soldier or a hunter. If the wind is blowing, it is not a steady position. It does not permit a man to take a quick shot; neither does it allow him to work the magazine of his rifle. No sportsman would ever think of using it in hunting, and, in my opinion, it should not be practiced. Nevertheless, it is largely used in matches.

Some riflemen extend their left arm to its full length, and grasp the rifle with the left hand as near the muzzle as they can, so that in shutting the hand the left arm is rigid. This position was used largely by the California Team, who were very successful at Creedmoor a number of years ago, and who were accustomed to practice in a high wind. It is an awkward position; makes a man too slow in aiming, and interferes with the use of the magazine with his rifle, and I am opposed to it.

While I fully recognize that there is a difference of opinion on this point, my personal judgment is that the proper way to hold the rifle is with the left hand at the balancing point. The gun can be held firmly in this position in a wind; the aim can be taken quickly in any direction, and the magazine can be worked rapidly. It is the position that every sportsman takes when shooting at game, and there is no difference between the shooting of a soldier and that of a hunter.

One of the defects in the army system of rifle practice in the past has been, and, to some extent, is now, the failure to recognize that military rifle practice should be conducted in the same way in which the soldier will have to shoot against his enemy in the field, and to look at the matter too much from the basis of making high scores at a target. High scores at a target are a valuable practice, but they are valuable only when such practice is made in such positions and under such conditions that the man can repeat them when he is in service. If he cannot, he should not be allowed to use them. Thus for a long time all shooting at the longer distances was done in the back position, and it was through

army influence, and against the objection of National Guardsmen, like myself, that that position was permitted to be used at mid ranges (which means at 500 and 600 yards). It soon, however, developed that while shooting on the back is considerably more steady than shooting in a prone position with the head to the target, it can only be used on a level and carefully mowed rifle range, and that as these conditions do not exist in warfare, it is of no value to the soldier. It has therefore been abolished in military shooting.

In aiming, the gun should be held solidly with both hands; the left elbow placed under and a little to the right of the gun, the wrist being turned slightly for that purpose, the right elbow thrown well up and at right angles with body and a little backward, and the gun pushed hard against the right shoulder. If the left elbow is not under the gun, the weight of the latter will cause a strain upon the wrist. If the gun is held lightly, not only will the aim be unsteady, but the recoil will be severe. The result will be a jar which will spoil your shooting, and be likely to give you a sore shoulder. If the gun is held hard against the right shoulder, the position is steadier, and the recoil is a push instead of a blow. The shoulder should be raised and the head somewhat lowered. How much one or the other should be done depends on the conformation of the man. It should be remembered that if one gets his head too much forward, the recoil of the gun may cause his right thumb to strike his nose and cause him to "flinch." You should endeavor to secure a position which suits your conformation and which is as easy and steady as possible, and then practice it until it becomes a habit.

All shooting involves the use of muscles which are seldom used in ordinary life and they need to be developed by frequent practice in aiming. The army has a regular "position and aiming drill" for this purpose, which is practiced (with empty guns) on the rifle machine.

In aiming through the notch in the rear sight, the sights which should be taken are the "fine," "medium" or half and "full."

Fine sight is when the front sight is aligned so that its extreme tip is visible in the bottom of the notch.

Half sight is when the half of the wedge of the front sight is visible.

Full sight is when the whole of the wedge of the front sight is seen through the notch.

While opinions on this point differ, my own is that full sight is one that should always be used.

In shooting with a fine sight, it takes time to get it, and the light makes it uncertain. On a bright day you may see only the part of the front sight that you intend to do. But when your eye gets tired, or the light becomes less, you think you are exposing the same portion of the front sight as you did at first. In fact, however, you really are exposing more, and consequently you gradually begin to shoot high. In other words, it takes more of the front sight, under such circumstances, to look the same than was the case with the part that you saw when the light was good and your eye was not tired. On the other hand, if in aiming you see so much of the front sight that the top is level with the side of the notch, you will always have the same sight and know exactly what you are doing. It is also much less tiresome on the eye. What is more important, it can be caught much quicker than a fine sight.

In shooting with the peep-hole, you must see that the eye takes the center of the hole, so that an even circle of light appears all around the front sight. After a little practice you do this unconsciously.



# Kneeling

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With grown men, particularly if stout, the kneeling position is one of the most difficult ones to take. To young men like yourselves, whose muscles are flexible, it will be more easy. It is a very necessary position in military shooting, as it exposes the man less than when standing, and at the same time permits aim to be taken in high grass, and under circumstances where the prone position is impracticable.

In kneeling, the man is to sit on his right heel, and to put his left elbow, not upon the point of his knee (which would be very unsteady), but in front of it, so that the part of the arm behind the elbow will rest upon the knee. He holds his right hand as he does in firing standing, and left hand is held just in front of the trigger guard. The piece is held firmly against his shoulder with both hands.

Care must be taken in the kneeling position to avoid pressing the butt of the rifle against the upper arm instead of against the hollow of the shoulder, where it belongs. When the former is done, it is necessary to turn the head more to the right, and to bring the nose too near the right thumb. The recoil is also felt much more when the butt is held against the arm than when it is placed against the hollow of the shoulder. For this reason the right elbow should be brought well to the front and raised so that the arm is about parallel to the ground, which makes it easier to get the right foot into the proper place.

The advantages of the kneeling position is the rest which is obtained from the left arm resting over the knee, at first the position may be felt to be quite constrained, but when it is practiced so that the muscles become accustomed to it, it is considerably steadier than the standing position.

# Sitting Down

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In this position, sit down facing slightly to the right. The left leg directed to the front, the right leg inclined to the right, both legs being slightly bent and the heels upon the ground, the right knee slightly higher than the left.

It is a good plan to make a slight hole in the ground for the heels, to prevent any tendency on their part to slip.

In aiming, the left elbow is rested on the left knee, with its point in front of the knee cap, and the right elbow inside of the right knee, the body inclined slightly forward from the hips.

While this position cannot be taken quite as quickly, or the aim be taken from it with as great rapidity as from the kneeling position, it is the steadiest of the two.

In hunting, when the sportsman has to take a shot at a considerable distance, and the grass is so high that he cannot see his game while lying down, he usually prefers to aim sitting instead of kneeling. This is particularly the case if he happens to be a little stout.

# Firing Lying

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In firing in the prone position or with head to the target, you should place yourself on your stomach with the left shoulder towards the target, the legs inclined well to the left, both elbows on the ground, the left elbow under and slightly to the right of the barrel of the gun, the left hand grasping it solidly, and the right hand holding the butt against the right shoulder. The sling strap, if used, should be properly looped with the adjusting hook, the loop passing over the left fore-arm and brought tight around the arm just above the elbows.

The object of inclining the legs to the left is to raise the right shoulder, so that the butt of the gun can be placed against it, and not against the collarbone, as otherwise the recoil is very unpleasant. Most people spread the legs wide apart and turn the toes out. Some men cross their legs. This is a matter depending on the conformation of each individual man, and you should select such a position as you find by experience to be the steadiest.

The left hand supports the barrel at the balancing point, the weight of the body mainly resting upon the left elbow, the right resting lightly on the ground. When aiming you slide the rifle with the right hand through the left hand to the front, until the left hand is a little in front of the trigger, and at the same time raise the rifle with both hands and press it against the hollow of the shoulder. Then direct the aim upon the bull's-eye, and pull the trigger as I have heretofore explained. If you find that the butt is against the collarbone, you should move the shoulders slightly to the front or rear, or change the position of the right elbow, so as to secure a position in which the shoulder gives the easiest rest to the rifle. If then the butt is held solidly against the shoulder the force of the recoil will not be disagreeable. In this position, the head is required to be usually a little higher than is the case in aiming standing.

The higher the sight is raised, the more the head must be raised to look over it.

This position affords more advantages to the soldier than any other, and is the one mainly used in war. It keeps him close to the ground so that he is in less danger. It enables him to fire over low breastworks, and to raise his rifle over a log or stone; and it also gives him a much better view over the ground which separated him from his mark, and a very much greater facility of firing without altering the position of the body than can be obtained in the back position. For this reason the back positions are no longer authorized in our Army Firing Regulations.

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